

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

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1. (Currently Amended) A driving apparatus of liquid crystal display apparatus, comprising:

first and second amplifier circuits that amplify a noninverted input signal or an inverted input signal; a first changeover circuit that selectively switches and outputs the noninverted and inverted input signals to be outputted to the first and second amplifier circuits;

a second changeover circuit that selectively switches and outputs output signals of the respective first and second amplifier circuits to pixels provided in a matrix manner in accordance with an alternation signal; and

a changeover control circuit that controls switching of the first and second changeover circuits so that (a) polarity of an offset voltage to be applied to the pixel by the first and second changeover circuits is changed for every predetermined number of frames and (b) the offset voltage is canceled by frames whose number is twice as many as the predetermined number of frames.

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2. (Currently Amended) The driving apparatus as set forth in claim 1, wherein the changeover control circuit ~~(a)~~ counts horizontal synchronizing signals or signals each of which is outputted for every horizontal synchronizing period, ~~(b)~~ controls the switching of the first changeover circuit in accordance with a first changeover signal that has been subjected to frequency division so that an integral multiple of a value thus counted is not equal to the number of horizontal lines, and ~~(c)~~ discriminates whether the number of the horizontal lines is an even number or an odd number and generates, in accordance with a result thus discriminated and a vertical synchronizing signal, the second changeover signal that varies in synchronization with the horizontal synchronizing signal or the signal that is outputted for every horizontal synchronizing period so as to control the switching of the second changeover circuit in accordance with the second changeover signal.

3. (Currently Amended) The driving apparatus as set forth in claim 2, wherein the changeover control circuit includes:

a first frequency divider circuit that outputs the first changeover signal;

a second frequency divider circuit that outputs the signal that varies in synchronization with the horizontal synchronizing signal or the signal that is outputted for every horizontal synchronizing period;

a third frequency divider circuit that outputs a signal which varies in synchronization with the vertical synchronizing signal;

a logical product circuit that conducts logical product operation with respect to the discriminated result indicative of whether the number of the horizontal lines is an even number or an odd number and an output signal of the third frequency divider circuit, and; and

an exclusive OR circuit that conducts exclusive OR operation with respect to the output signal of the logical product circuit and an output signal of the second frequency divider circuit, and generates the second changeover signal.

4. (Currently Amended) A driving apparatus of liquid crystal display apparatus, comprising:

first and second amplifier circuits that amplify a noninverted input signal or an inverted input signal;

a first changeover circuit that selectively switches and outputs the noninverted and inverted input signals to be outputted to the first and second amplifier circuits;

a second changeover circuit that selectively switches and outputs output signals of the respective first and second amplifier circuits to pixels provided in a matrix manner in accordance with an alternation signal, ~~and; and~~

a changeover control circuit that controls switching of the first and second changeover circuits so that polarity of an offset voltage to be applied to the pixel is changed for every $2m$ frames and the offset voltage is canceled by $4m$ frames, where m is a natural number.

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5. (Currently Amended) The driving apparatus as set forth in claim 4, wherein the changeover control circuit ~~(a)~~ controls the switching of the first changeover circuit in accordance with a third changeover signal that is a resultant of frequency division in which a frequency of the vertical synchronizing signal is divided so as to be $1/2m$, ~~(b)~~ discriminates whether the number of the horizontal lines is an even number or an odd number, ~~(c)~~ generates, in accordance with a result thus discriminated and the vertical synchronizing signal, the second changeover signal that varies in synchronization with a signal

that is outputted for, every horizontal synchronizing signal or for every horizontal synchronizing period, and ~~(d)~~ controls the switching of the second changeover circuit in accordance with the second changeover signal.

6. (Currently Amended) The driving apparatus as set forth in claim 5, wherein the changeover control circuit includes:

a fourth frequency divider circuit that outputs the third changeover signal;

a fifth frequency divider circuit that outputs the signal that varies in synchronization with the horizontal synchronizing signal or the signal that is outputted for every horizontal synchronizing period;

a logical product circuit that conducts logical product operation with respect to ~~(a)~~ the discriminated result indicative of whether the number of the horizontal lines is an even number or an odd number and ~~(b)~~ a signal that varies in synchronization with the vertical synchronizing signal; and

an exclusive OR circuit that conducts exclusive OR operation with respect to an output signal of the logical product circuit and an output signal of the fifth frequency divider circuit, and generates the second changeover signal.

7. (Currently Amended) A driving method of liquid crystal display apparatus in which ~~(a)~~ noninverted and inverted input signals of first and second amplifier circuits are switched in accordance with a changeover signal and ~~(b)~~ output signals of the first and second amplifier circuits are switched and outputted to pixels provided in a matrix manner in accordance with an alternation signal, comprising the step of:
controlling the changeover signal and the alternation signal ~~(1)~~ so that polarity of each offset voltage to be applied to the pixel is changed for every predetermined number of frames, and ~~(2)~~ so that the offset voltage is canceled by frames whose number is twice as many as the predetermined number of frames.

8. (Currently Amended) The driving method as set forth in claim 7, wherein ~~(a)~~ the horizontal synchronizing signals or the signals that are outputted for every horizontal synchronizing period are counted, ~~(b)~~ the changeover signal is controlled in accordance with a first changeover signal that has been subjected to frequency division so that an integral multiple of the value thus counted is not equal to the number of the horizontal lines, and ~~(c)~~ it is discriminated whether the number of the horizontal lines is an even number or an odd number and generates, in accordance with a result thus discriminated and a

vertical synchronizing signal, the second changeover signal that varies in synchronization with the horizontal synchronizing signal or the signal that is outputted for every horizontal synchronizing period so as to control the alternation signal in accordance with the second changeover signal.

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9. (Currently Amended) A driving method of liquid crystal display apparatus in which ~~(a)~~ noninverted and inverted input signals of first and second amplifier circuits are switched in accordance with a changeover signal and ~~(b)~~ output signals of the first and second amplifier circuits are switched and outputted to pixels provided in a matrix manner in accordance with an alternation signal, comprising the step of:

controlling the changeover signal and the alternation signal so that polarity of an offset voltage to be applied to the pixel is changed for every $2m$ frames and the offset voltage is canceled by $4m$ frames, where m is a natural number.

10. (New) The driving method as set forth in claim 9, further comprising the steps of:

counting horizontal synchronizing signals or signals each of which is outputted for every horizontal synchronizing period;

controlling the switching of the first changeover circuit in accordance with a first changeover signal that has been subjected to frequency division so that an integral multiple of a value thus counted is not equal to the number of horizontal lines; and

discriminating whether the number of the horizontal lines is an even number or an odd number and generates, in accordance with a result thus discriminated and a vertical synchronizing signal, the second changeover signal that varies in synchronization with the horizontal synchronizing signal or the signal that is outputted for every horizontal synchronizing period so as to control the switching of the second changeover circuit in accordance with the second changeover signal.

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11. (New) The driving method as set forth in claim 9, further comprising the steps of:

outputting, by a first frequency divider circuit, the first changeover signal;

outputting, by a second frequency divider circuit, the signal that varies in synchronization with the horizontal synchronizing signal or the signal that is outputted for every horizontal synchronizing period;

outputting, by a third frequency divider circuit, a signal which varies in synchronization with the vertical synchronizing signal;

conducting, by a logical product circuit, logical product operation with respect to the discriminated result indicative of whether the number of the horizontal lines is an even number or an odd number and an output signal of the third frequency divider circuit; and

conducting, by an exclusive OR circuit, an exclusive OR operation with respect to the output signal of the logical product circuit and an output signal of the second frequency divider circuit, and generating the second changeover signal.

12. (New) The driving method as set forth in claim 9, further comprising the steps of:

discriminating whether the number of the horizontal lines is an even number or an odd number;

generating, in accordance with a result thus discriminated and the vertical synchronizing signal, the second changeover signal that varies in synchronization with a signal that is outputted for, every horizontal synchronizing signal or for every horizontal synchronizing period; and

controlling the switching of the second changeover circuit
in accordance with the second changeover signal.

13. (New) The driving method as set forth in claim 9,
further comprising the steps of:

outputting, by a fourth frequency divider circuit, the
third changeover signal;

outputting, by a fifth frequency divider circuit, the
signal that varies in synchronization with the horizontal
synchronizing signal or the signal that is outputted for every
horizontal synchronizing period;

conducting, by a logical product circuit, logical product
operation with respect to (a) the discriminated result
indicative of whether the number of the horizontal lines is an
even number or an odd number and (b) a signal that varies in
synchronization with the vertical synchronizing signal; and

conducting, by an exclusive OR circuit, exclusive OR
operation with respect to an output signal of the logical
product circuit and an output signal of the fifth frequency
divider circuit, and generates the second changeover signal.

14. (New) The driving method as set forth in claim 9,
wherein (a) the horizontal synchronizing signals or the signals

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that are outputted for every horizontal synchronizing period are counted, (b) the changeover signal is controlled in accordance with a first changeover signal that has been subjected to frequency division so that an integral multiple of the value thus counted is not equal to the number of the horizontal lines, and (c) it is discriminated whether the number of the horizontal lines is an even number or an odd number and generates, in accordance with a result thus discriminated and a vertical synchronizing signal, the second changeover signal that varies in synchronization with the horizontal synchronizing signal or the signal that is outputted for every horizontal synchronizing period so as to control the alternation signal in accordance with the second changeover signal.
